

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/040087

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C10G17/10 C10G21/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C10G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| Y | US 4 159 940 A (SMITH ET AL) 3 July 1979 (1979-07-03) claim 1; figures 1,2 | 1-14 |
| Y | EP 0 143 129 A (EXXON RESEARCH AND ENGINEERING COMPANY) 5 June 1985 (1985-06-05) claims 1,2; figure 1 | 1-14 |
| A | US 4 960 507 A (EVANS ET AL) 2 October 1990 (1990-10-02) claims 1,4 | 1-14 |
| A | EP 0 376 637 A (EXXON RESEARCH AND ENGINEERING COMPANY) 4 July 1990 (1990-07-04) page 11, line 16 - line 44 | 1-14 |

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

25 February 2005

Date of mailing of the international search report

04/03/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Deurinck, P

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/040087

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| US 4159940 | A | 03-07-1979 | NONE | |
| EP 0143129 | A | 05-06-1985 | EP 0143129 A1 | 05-06-1985 |
| US 4960507 | A | 02-10-1990 | NONE | |
| EP 0376637 | A | 04-07-1990 | CA 2004494 A1 | 29-06-1990 |
| | | | EP 0376637 A1 | 04-07-1990 |
| | | | JP 2283794 A | 21-11-1990 |
| | | | US 5017279 A | 21-05-1991 |

BEST AVAILABLE COPY